

REMARKS

As amended, claims 1, 3-6, and 8-36 are pending in the Pending Application. Claims 1, 8-10, 16 and 17 have been amended and claims 22-36 have been added. Claims 22-36 are supported by the Pending Application, including the drawings and claims, as filed. No new matter has been added. Claims 1, 3-6, and 8-22 stand rejected.

A. Rejection of Claims 1, 3-6, 8 and 9

The Examiner has rejected claims 1, 3-6, 8 and 9 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,597,992 to Walker (“**Walker**”), in view of U.S. Patent No. 4,002,867 to Cherry (“**Cherry**”). Specifically, the Examiner states that Walker discloses the claimed invention, except for a semi-conductive material in contact with the exposed ring and disposed on a central portion of the vacuum chamber ceramic housing such that bands at the end portion of the vacuum chamber housing are substantially free of the semi-conductor material, with the voltage screen overlapping a portion of the semi-conductor material. The Examiner further states that it would have been obvious to connect the exposed ring in Walker to the outside semi-conductive coating suggested by Cherry, so that the floating shield voltage could be quickly discharged.

Claim 1 has been amended to indicate that the first and second voltage screens are disposed outside of the housing of the vacuum chamber, and to specify that the first and second voltage screens overlap the semi-conductive material and form a first and second capacitive path, respectively, with the semi-conductive material. In addition, claims 8 and 9 have been amended to depend from claim 1 instead of claim 7, which was previously cancelled.

It is respectfully submitted that the Examiner has failed to establish a *prima facie* case of obviousness because he has failed to show (1) that the cited references teach every limitation of the rejected claims, and (2) a motivation to combine the cited references. “To establish a *prima facie* case of obviousness, ... there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings...[and] the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

teaching or suggestion to make the claimed combination ... must... be found in the prior art, and not based on applicant's disclosure." M.P.E.P. § 2142 *citing In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner has failed to show that the cited references teach or suggest (a) a first and second voltage screen disposed outside the housing of the vacuum chamber, as recited in all the pending claims; (b) a first and second voltage screen overlapping a portion of the semi-conductive material, as recited in claim 1; and (c) a capacitive path formed between the first and second voltage screen and the semi-conductive material, as recited in all the pending claims.

Walker teaches a vacuum interrupter that includes several shields within a vacuum chamber. Specifically, the vacuum interrupter of Walker includes a central metallic shield 46 (Walker, column 4, lines 50-67, and Figure 1), an upper internal end shield 50, and a lower internal end shield 52 (Walker, column 5, lines 1-11, and Figure 1). These shields are all located inside the vacuum chamber for the purpose of intercepting metallic particles that are liberated from the contacts 30, 32 by arcing (Walker, column 5, lines 12-20). Cherry also discloses a vacuum interrupter that includes a central shield 22, and end (condensing) shields 6, 15 inside a vacuum chamber (Cherry, column 2, lines 36-41, and Figure 1). Just as in Walker, the Cherry shields 22, 6, and 15, are located inside the vacuum chamber for the purpose of protecting the inside of the vacuum chamber from metallic vapor (Cherry, column 2, lines 36-41, and Figure 1). Therefore, neither Walker nor Cherry teaches a first and second voltage screen disposed outside of a vacuum chamber.

In addition, Cherry discloses a semiconductor material on the outside of the vacuum chamber that creates a resistive path from shield 22 to one or both of the shields 6, 15 via contact structures 2 and 3, respectively, and support rods 4 and 10, respectively (column 2-3, lines 67-68 and 1-8, respectively, and Figure 8). Because the shields 6, 15 are located inside the vacuum chamber, and the semiconductor material is located on the outside of the vacuum chamber the shields 6, 15 do not overlap the semiconductor material, as recited in claim 1. In addition, because the semiconductor material in Cherry forms a direct, physical path between shield 22 and shields 6, 15, the semiconductor material does not form a capacitive path with a voltage shield, as recited in all the pending claims.

In addition, the Examiner has failed to show a motivation to combine the cited references in the manner suggested by the Examiner because Cherry explicitly teaches away from using a floating shield. Cherry teaches that floating shields are “vulnerable to transient charging affects which put the shield 22 at a higher than normal voltage from which it cannot easily recover...[D]uring the post arc recovery period the shield 22 may be locked in at an abnormally high voltage which it cannot quickly discharge.” (Cherry, column 2, lines 51-66). “Since the shield 22 is electrically isolated its leakage is extremely low and the time to restore the shield 22 to normal potential will require many cycles. During this time the shield 22 will be at high voltage and voltage breakdown may occur.” (Cherry, column 3, lines 51-55). Cherry presents a solution to this problem, which inserts “preselected resistances between the center condensing shield 22 and either or both electrodes, or contacts 2, 3 in the vacuum interrupter 1. This may be done by a number of different ways such as:... [b]y the use of ... semiconductors on the inside an/or outside surfaces of the insulator casing.” (Cherry, column 4, lines 27-41). “Such an arrangement... will avoid the condition of a “floating” condensing shield, and will result in predictable potential maintained on the shield 22.” (Cherry, column 4, lines 51-54). Because Cherry explicitly teaches away from using a floating shield, there is no motivation for one of ordinary skill in the art to combine the references as suggested by the Examiner.

For the foregoing reasons, it is respectfully requested that the rejection of claims 1, 3-6, 8 and 9 be withdrawn.

B. Rejection of Claims 10-22

The Examiner has rejected claims 10-22 under 35 U.S.C. § 103(a) as being unpatentable over Walker, in view of Cherry, further in view of U.S. Patent No. 4,618,749 to Bohme (“Bohme”). Specifically, the Examiner states that Walker and Cherry satisfy the limitations of claims 10 and 16, except for the first and second voltage screens disposed within the shielded encapsulation, which, he states, is disclosed by Bohme. The Examiner further states that it would have been obvious to one of ordinary skill in the art to provide voltage screens within shielded encapsulation as suggested by Bohme, to have better waste heat conduction.

Claim 10 has been amended to include “a floating shield within the vacuum chamber.” and to indicate that the semi-conductive material is coupled with the floating

shield. Claim 10 has also been amended to indicate that the first and second voltage screens, respectively, form a capacitive path with the semi-conductive material. Claim 16 has been amended to indicate that the recited vacuum chamber includes a floating shield within the chamber, which is coupled with the exposed ring, and that the first and second voltage screens are disposed exterior to the vacuum chamber so as to form a capacitive path with the semi-conductive material.

Because independent claims 10 and 16 include voltage screens exterior to the vacuum chamber and forming a capacitive path with the semi-conductor material, and a floating shield, the arguments previously presented in connection with the rejection of claims 1, 3-6, and 8-9 are applied to the rejection of claims 10-22 as well. In addition, Bohme does not teach the elements missing from Walker and Cherry ((a) first and second voltage screen disposed outside the housing of the vacuum chamber, as recited in pending claims 10-22; or (b) a capacitive path formed between the first and second voltage screen and the semi-conductive material, as recited in pending claims 10-22), or the motivation to combine the cited references as suggested by the Examiner. Therefore, it is respectfully requested that the rejection of claims 10-22 be withdrawn.

C. New Claims 23-36

The cited references do not provide the basis for a *prima facie* case of obviousness for new claims 23-36 because the cited references do not teach a voltage screen coupled to and disposed outside a vacuum chamber, and forming a capacitive path with the semi-conductive material. It is therefore respectfully requested that claims 23-36 be allowed.

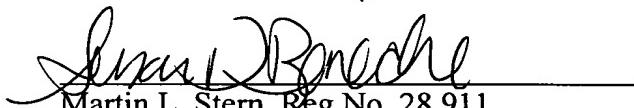
Conclusion

In view of the amendments and remarks set forth in this Amendment and Response to Office Action, it is respectfully submitted that the Pending Application, including claims 1, 3-6, and 8-36, is in condition for allowance. Therefore, it is respectfully requested that the foregoing amendments be entered, and the Pending Application be allowed.

The Examiner is invited to contact the undersigned if such contact would in any way facilitate and expedite the prosecution of this application.

Respectfully submitted,

Date: June 1, 2005



Martin L. Stern, Reg No. 28,911
Susan D. Reinecke, Reg. No. 40,198
Michael Best & Friedrich LLP
401 N. Michigan Avenue
Suite 1900
Chicago, IL 60611
(312) 222-0800

Docket No.: 201376-9017